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METHOD FOR GENERATING EQUIPROBABLE BINARY NUMBERS AND A DEVICE FOR ITS REALIZATION

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Methods are known for generating random binary numbers (enumeration of a random pulses train over a constant interval).

The proposed method differs from these in that it allows starting of a digital converter by a determined pulses train during a random time interval.

The device for realizing the proposed method differs in that, with the aim of generating a random time interval, it contains a static flip-flop, one of the inputs of which is connected to a sync-signal source, and the other to a random-pulse generator.

The block diagram of the device for generating equiprobable binary numbers with a random interval between numbers, which realizes the proposed method, is shown in the figure.

The device contains a fluctuation source 1, an amplifier-shaper 2, which converts voltage fluctuation into a random pulse train; an interval flip-flop, controllable at one input by random pulses, and at the other by "beginning of formation" signals; and a digital converter

circuit, consisting of a single-digit binary counter 4 and gate 5, which passes a determined series of pulses 6 to start the binary counter. Gate 5 is controlled by the interval flip-flop.

The beginning of formation of a random number is determined by the instant of arrival of a "beginning of formation" pulse 7 at the interval flip-flop, which, in this, is reduced to the working state and opens gate 5. Determined pulse train 6 starts to be enumerated by counter 4. The very first random signal which enters the second input of the interval flip-flop returns it to the initial state and, thereby, closes gate 5. The binary counter remains in one of its two stable positions, which can be received as a binary number. Inasmuch as the interval over which the forming counter is started has a random value, each of two stable positions of the counter in which it shows up after closing gate 5 will be generated randomly and with equal probability. Generation of the next number is accomplished similarly after the arrival of a new "beginning of formation" signal.

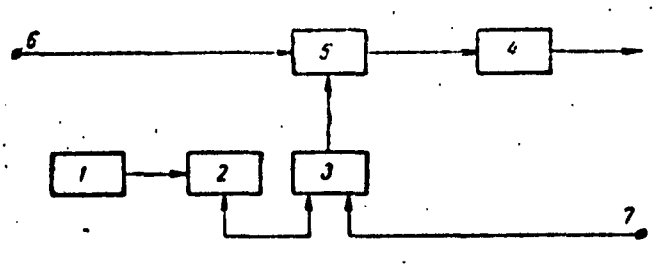
The proposed method allows the rate of generation of random numbers to be increased and the stability of reproduction of the required law of distribution to be raised.

Object of Invention

1. The method of generating equiprobable binary numbers is distinguished by the fact that, with the aim of increasing the formation rate and increasing the degree of stability of the probability near the required value, each number is formed by a determined pulse train over a random time interval.

2. The device for accomplishing this method is distinguished by the fact that, in order to obtain a random time interval, it contains a static flip-flop, one of the inputs of which is connected to

a sync-signal source, and the other to a random-pulse generator.



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